

IN THE CLAIMS

1 1. (Currently Amended) A metalworking fluid from heavy alkylate, comprising;

2 (a) residual fraction having C22 – C26 carbon atom of detergent class alkyl benzene in the
3 concentration range of 40 to 85.68 weight percent of the metal working fluid, (b) at least one
4 sulfonate/oleate class emulsifier in the range of 10 to 37.98 weight percent of the metalworking
5 fluid, (c) synergistic combination of various additive components including, at least one
6 triglyceride vegetable oil type lubricity booster component in the concentration range of 2-10
7 weight percent of metal working fluid, a phenol/amine type antioxidant component in the
8 concentration range of 0.005-0.05 weight percent, a phenolic fungicide component in the
9 concentration range of 0.005-0.05 weight percent, an organic sulfide/phosphosulfide extreme
10 pressure additive component in the concentration range of 0.005-0.05 weight percent, and a
11 triazole/sulfonate type antirust component in the concentration range of 0.005-0.05 weight
12 percent, (d) alcoholic co-surfactant component in the range of 1-10 weight percent of metal
13 working fluid, (e) a sulfonate/sulfate coupling agent in the range of 0.5 to 1.0 weight percent of
14 metal working fluid, (f) alkali earth metal salt component in the range of 0.5-1.0 weight percent
15 of metal working fluid, that when converted into emulsion by stirring it in 60 to 90 weight
16 percent of water ~~then~~, the emulsion is then useful as a general purpose soluble cutting oil ~~to act~~
17 that acts as a coolant/engineering aid in metalworking, ~~having~~ has less toxicity than mineral
18 [[oil]] based ~~metalworking fluid oil~~ and ~~adding~~ adds value to a waste product, i.e. heavy alkyl
19 benzene.

1 2. (Previously Presented) A composition as claimed in claim 1; wherein the residual
2 component of Alkyl Benzene is an oil component having heavy alkyl benzene of C22 – C26

3 carbon number, a heavy fraction by-product separated from detergent class alkyl benzene during
4 manufacture.

1 3. (Original) A composition as claimed in claim 1, wherein the emulsifier is selected
2 from the group consisting of heavy alkylate sodium sulfonates, sodium carboxylate, sodium
3 oleate, Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium sulfonate
4 or mixtures thereof.

1 4. (Original) A composition as claimed in claim 1, wherein the lubricity booster is a
2 vegetable oil selected from the group consisting of karanja oil, neem oil, rice-bran oil, castor oil
3 or mixtures thereof.

1 5. (Original) A composition as claimed in claim 1, wherein the antioxidant component is
2 selected from the group consisting of an alkyl phenol, aromatic amine, substituted alkyl phenol
3 selected from 2,6-ditertiary butyl phenol, 2,6-ditertiary p-cresol, Diphenylamine, Tertiary butyl
4 phenol amino tetrazole and 2,6-dioctyl phenylene diamine.

1 6. (Original) A composition as claimed in claim 1, wherein the fungicide component is
2 a phenol or phenolic acid selected from the group consisting of o-cresol, phenol, m-cresol and
3 cresylic acid.

1 7. (Original) A composition as claimed in claim 1, wherein the extreme pressure
2 additive component is an organic sulfide or phosphosulfurized metal salt selected from the
3 group consisting of dibenzyl disulphide, sulfurized vegetable oil, phosphosulfurized decyl oleate
4 molybdate and phosphothio pentadecyl phenol molybdate.

1 8. (Original) A composition as claimed in claim 1, wherein the anti-rust component is a
2 triazole or sulfonate selected from the group consisting of 1H-benzotriazole, ditertiary butylated
3 1H-Benzotriazole, calcium petroleum sulfonate and calcium heavy alkylate sulfonate.

1 9. (Previously Presented) A composition as claimed in claim 1, wherein the co-
2 surfactant component is a alcohol selected from the group consisting of isopropanol, n-butanol,
3 iso-butanol, iso-amyl alcohol, 2 ethyl hexanol, mono & poly glycol Viz., diethylene glycol and
4 tri ethylene glycol.

1 10. (Original) A composition as claimed in claim 1, wherein the coupling agent
2 component is a sulfonates (molecular weight less than 350) selected from the group consisting of
3 ligno sulfonate, petroleum sulfonate, sodium dodecyl benzene sulfonate and sodium lauryl
4 sulfate.

1 11. (Previously Presented) A composition as claimed in claim 1, wherein the alkali
2 component is an alkali and alkaline earth metal salt selected from the group consisting of sodium
3 carbonate, sodium hydrogen carbonate, calcium carbonate and calcium oxide.

1 12. (Previously Presented) A composition as claimed in claim 1, wherein the composition
2 is suitable for use as metal working fluid and general emulsion as admixture with water in
3 concentration range from 60 to 90 weight percent.

1 13. (Original) A process for preparing metalworking fluid as claimed in claim 1, said
2 process comprises the steps of;
3 a. removing of insoluble matter from the heavy alkylate followed by addition of emulsifier
4 and vegetable oil to obtain the mixture;

5 b. homogenizing the resultant mixture at a temperature in the range of 30 to 100°C for about
6 one hour with stirring;

7 c. adding the antioxidant, fungicide, extreme pressure additives, anti rust component,
8 cosurfactant, coupling agent, alkali, followed by addition of water to make up the quantity about
9 1kg, and

10 d. homogenizing the mixture for about 30 minutes, the pH of the solution was adjusted to 7-
11 9 by addition of sodium carbonate and cooling the resultant metal working fluid at room
12 temperature.

1 14. (Previously Presented) A process as claimed in claim 13, wherein the residual
2 component of Alkyl Benzene is a oil component having heavy alkyl benzene of C22 – C26
3 carbon number, a heavy fraction, by-product, separated from detergent class alkyl benzene
4 during manufacture.

1 15. (Previously Presented) A process as claimed in claim 13, wherein the concentration
2 of heavy alkyl benzene component is in the range of 40 to 85.68 weight percent of the
3 metalworking fluid.

1 16. (Original) A process as claimed in claim 13, wherein the emulsifier is selected from
2 the group consisting of heavy alkylate sodium sulfonates, sodium carboxylate, sodium oleate,
3 Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium sulfonate or
4 mixtures thereof.

1 17. (Previously Presented) A process as claimed in claim 13, wherein the concentration
2 of emulsifier component is in the range of 10 to 37.98 weight percent of the metalworking fluid.

1 18. (Original) A process as claimed in claim 13, wherein the vegetable oil component
2 for lubricity booster is selected from the group consisting of karanja oil, neem oil, rice-bran oil,
3 castor oil or mixtures thereof.

1 19. (Original) A process as claimed in claim 13, wherein the concentration of vegetable
2 oil component for lubricity boost is in the range of 2 to 10 weight percent of the metalworking
3 fluid.

1 20. (Original) A process as claimed in claim 13, wherein the antioxidant component is
2 selected from the group consisting of an alkyl phenol, aromatic amine, substituted alkyl phenol
3 selected from 2,6-ditertiary butyl phenol, 2,6-ditertiary p-cresol, Diphenylamine, Tertiary butyl
4 phenol amino tetrazole and 2,6-dioctyl phenylene diamine.

1 21. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of antioxidant component is in the range of 0.005 to 0.05 weight percent.

1 22. (Original) A process as claimed in claim 13, wherein the fungicide component is a
2 phenol or phenolic acid selected from the group consisting of o-cresol, phenol, m-cresol and
3 cresylic acid.

1 23. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of fungicide component is in the range of 0.005 to 0.05 weight percent.

1 24. (Original) A process as claimed in claim 13, wherein the extreme pressure additive
2 component is an organic sulfide or phosphosulfurized metal salt selected from the group
3 consisting of dibenzyl disulphide, sulfurized vegetable oil, phosphosulfurized decyl oleate
4 molybdate and phosphothio pentadecyl phenol molybdate.

1 25. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of extreme pressure additive component is in the range of 0.005 to 0.05 weight
3 percent.

1 26. (Original) A process as claimed in claim 13, wherein the anti-rust component is a
2 triazole or sulfonate selected from the group consisting of 1H-benzotriazole, ditertiary butylated
3 1H-Benzotriazole, calcium petroleum sulfonate and calcium heavy alkylate sulfonate.

1 27. (Previously Presented) A process as claimed in claim 13, wherein the concentration
2 of ant-rust component is in the range of 0.005 to 0.05 weight percent.

1 28. (Original) A process as claimed in claim 13, wherein the co-surfactant component is
2 a alcohol selected from the group consisting of isopropanol, n-butanol, iso-butanol, iso-amyl
3 alcohol, 2 ethyl hexanol, mono & poly glycol such as di ethylene glycol and tri ethylene glycol.

1 29. (Original) A process as claimed in claim 13, wherein the concentration of co-
2 surfactant component is in the range of 1 to 10 weight percent of the metalworking fluid.

1 30. (Previously Presented) A process as claimed in claim 13, wherein the coupling
2 agent component is a sulfonate (molecular weight less than 350) selected from the group
3 consisting of calcium ligno sulfonate, sodium petroleum sulfonate, sodium dodecyl benzene
4 sulfonate and sodium lauryl sulfate.

1 31. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of coupling agent component is in the range of 0.5 to 1.0 weight percent of the
3 metalworking fluid.

1 32. (Previously Presented) A process as claimed in claim 13, wherein the alkali
2 component is an alkali and alkaline earth metal salt selected from the group consisting of sodium
3 carbonate, sodium hydrogen carbonate, calcium carbonate, calcium oxide.

1 33. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of alkali component is in the range of 0.5 to 1.0 weight percent of the
3 metalworking fluid.

1 34. (Previously Presented) A metalworking fluid from heavy alkylate, comprising;
2 (a) residual fraction having C22 – C26 carbon atom of detergent class Alkyl Benzene in the
3 concentration range of 50 to 90 weight percent of the metal working fluid, (b) an emulsifier
4 selected from the group comprising heavy alkylate sodium sulfonates, sodium carboxylate,
5 sodium oleate, Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium
6 sulfonate or mixtures thereof, in the range of 10 to 37.98 w% of the metalworking fluid, (c) at
7 least one lubricity booster component in the concentration range of 2-10 percent of metal
8 working fluid, (d) an antioxidant component is in the concentration range of 50-500 ppm, (e) a
9 fungicide component in the concentration range of 50-500 ppm, (f) an extreme pressure additive
10 component in the concentration range of 50-500 ppm (g) an antirust component in the
11 concentration range of 50-500 ppm, (h) a co-surfactant component in the range of 1-10 weight
12 percent of metal working fluid, (i) a coupling agent in the range of 0.5 to 10 weight percent of
13 metal working fluid, (j) alkali component in the range of 8-10 weight percent of metal working
14 fluid.